

Advancement Handbook for Sonar Technician (Surface)

PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Sonar Technician (Surface) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the “*Exam Expectations*” section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

Prepared by
Navy Advancement Center Department,
Naval Education and Training Professional
Development and Technology Center

CONTENTS

PARTS		PAGE
1	Advancement Handbook for Sonar Technician (Surface) Third Class	1-1
2	Advancement Handbook for Sonar Technician (Surface) Second Class.....	2-1
3	Advancement Handbook for Sonar Technician (Surface) First Class	3-1
4	Advancement Handbook for Sonar Technician (Surface) Chief	4-1
Appendix 1	References Used in This Advancement Handbook.....	A-1

Part 1

Advancement Handbook for STG3

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform pre-underway operational checks and identify normal/abnormal conditions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform system operational checks • Perform sonar equipment and space checks • Identify normal/abnormal conditions • Interpret computerized alerting systems data • Secure sonar systems and UBFC/ASWCS for shock
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Combat Systems Operational Sequencing System Manuals (CSOSS)</i> • Applicable Operation Guidelines for AN/SQQ-89(V) • <i>Operation/Maintenance AN/SQS-56 (SE315-DT-MMO-010) Chs 1-3</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> • <i>System Operation/Maintenance AN/SQS-53B Chs 1-3</i> • <i>Sonar Detecting-Ranging Set AN/SQS-53C(V) Chs 1-3</i> • <i>Sonar Receiving Set AN/SQR-19(V) Chs 1-3</i> • <i>Sonar Signal Processing System AN/SQQ-28(V) Chs 1-3</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS); Chs 1-3</i> • <i>Surface Ship ASW System with Control Panel MK 309 OP 4407</i> • <i>AN/SQQ-89(V) Surface Antisubmarine Warfare Combat System (SE394-AD-MMA-030/SQQ-89(V))</i>

	<ul style="list-style-type: none"> Planned Maintenance System (PMS) applicable MRC's
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about system variants in ship class, equipment within each system, power on/off procedures, knobology and pre-underway checks. In addition, you will be given symptoms and/or indications of system status that will require your analysis to determine if a fault condition exists.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Classify sonar contacts on active and passive systems utilizing hull mounted, fixed/towed array sonar systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Interpret active sonar echo characteristics • Detect submerged objects (mines, bottom contours, etc.) • Identify contact operating characteristics and obtain turn counts or shaft RPM's • Classify acoustic signatures to platform type and class • Identify contact maneuvers • Identify surfaced and submerged transient noises • Identify evasion devices and acoustic jamming • Identify acoustic source relationships (mechanical, harmonic, electrical, and speed)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable AN/SQQ-89(V) Operational Guidelines • ONI ACINT Newsletters • <i>Mine-Like Object Detection and Avoidance</i> MZ-6050-1-95 • <i>Surface Ship Active Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Principles of LOFAR Gram Analysis</i> (NWP 1-10.2 Vol 1 (REV A) and Vol 2 (REV A)) • <i>Passive Acoustic Classification Reference Manual</i> (NWP 1-10.22) • <i>Signature Catalog: CIS Diesel and Nuclear Submarines</i> (NWP 1-10.26) • <i>Foreign Submarine DATA Handbook</i> (NWP 1-10.21) • <i>U.S. Nuclear Submarine DATA Handbook</i> (NWP 1-10.27) • <i>Acoustic Characteristics of Russian Surface</i>

	<p><i>Combatants</i> (DST 1210S-345-XX), Vol 1 and Vol 2</p> <ul style="list-style-type: none"> • <i>Acoustic Characteristics of Diesel Submarines (Less Russia)</i> (DST 1220S-092-XX) • <i>Acoustic Characteristics of Russian Type 1 Through Type 4 Diesel Submarines</i> (DST 1220S-646-XX) • <i>Acoustic Characteristics of Russian Type 2 and Type 3 Nuclear Submarines</i> (DST 1220S-461-XX) • <i>Acoustic Characteristics of Russian Type 6 and 7 Nuclear Submarines</i> (DST 1220S-465-XX) • <i>In-Water Acoustic Characteristics of Russian Missiles, Countermeasures and Torpedoes</i> (DST 1260S-084-XX)
	<p>You can expect questions about the following areas: active echo characteristics, small object avoidance (mines), bottom contour (pinnacles, slopes), LOFAR terminology, application of basic LOFAR formulas, as well as types and operating characteristics of all submarines and surface ships.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Compute active/passive figure of merit and active/passive sonar ranges. Conduct XBT/XSV drops and log information.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Calculate sonar performance parameters (source levels (Ls), noise levels (Ln), etc.) • Determine propagation paths of underwater sound • Determine best depth for contact to avoid detection • Calculate probability of detection and counterdetection ranges • Launch expendable bathythermographs (XBTs) • Analyze XBT data • Evaluate sonar performance (manual range predictions, SIMAS) • Identify environmental effects on acoustic displays • Identify ocean environmental changes
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable AN/SQQ-89(V) Operational Guidelines • <i>Fleet Oceanographic and Acoustic Reference Manual</i> (RP 33) • <i>Meteorological and Oceanographic Support System Manual</i> (NAVMETOCCOMINST 3140.1) • BT log (OCEANAV 3167/1) • <i>Bathythermograph/Sound Velocimeter</i> AN/BQH-7A (SE365-BA-MMO-010/BQH-7A) • <i>Bathythermograph Set</i> AN/SSQ-(56,56A,60,61 and 61A) (SE365-AA-MMM-010) • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-

	XX(SIMAS)) <ul style="list-style-type: none"> • <i>Surface Ship Acoustic Prediction Systems and Tactics</i> (NWP 3-21.34) • <i>Allied Submarine Warfare Manual</i> ATP 28A Chs 1 and 2, ANNEX A, B
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: sound energy losses through spherical and cylindrical spreading, dimensions of a velocity profile, various ray paths which sound energy may take from source to detector, and components of the active and passive sonar equation. Also, questions concerning environmental effects (fronts, currents, eddies, etc.), interpretation of BT data and interference patterns will be asked.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Track contacts on active/passive systems utilizing both towed and fixed array sonar systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Determine contact bearing • Mark and interpret contact information • Track contacts and report to fire control • Resolve for bearing ambiguity • Convert between true and relative bearings • Collect ASW weapons firing data • Determine contact bearing, ranges, geographic position and aspect • Compute angle on the bow (AOB), course and speed, and closest point of approach (CPA) • Perform target motion analysis (TMA) • Plot contacts • Compute contact doppler and range rates
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable System Operating Guidelines • <i>Surface Ship Active Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Surface Ship Passive Localization and Target Motion Analysis</i> (NWP 3-21.51.3 Rev A, Chs 1,2,3 and 7) • <i>IUSS Standard Operating Procedures (SOPS)</i> (COMUNDERSEASURV INST S3120.11) • <i>Maneuvering Board Manual</i> Pub 217 • <i>Target Motion Analysis (TMA) Techniques</i> (NWP 3-21.51.1) • <i>Standard Fire Control Symbols</i> (NAVORD OP 1700)
<i>Exam Expectations.</i> These are subject areas you should know to help you	You can expect questions about contact tracking and interpreting contact data to identify bearing, range, maneuvers,

answer exam questions correctly:	<p>speed/doppler and false contacts. Additionally, questions will require you to convert between true and relative bearings, track contacts and provide data to Fire Control, collect weapons firing data, resolve for bearing ambiguity, and solve problems relating to passive/active contact localization and target motion analysis (TMA). You will be required to describe basic reference information on charts used to locate or specify a position and how lines of bearing are developed and used in the IUSS system. You will also be required to identify types of charts used in the IUSS system, requirements, localization procedures when one or more sensors hold contact, localization procedures when using a maneuvering board, deduced reckoning, time-difference fixing, and doppler plotting techniques.</p>
----------------------------------	--

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct sonar searches on active/passive systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Conduct sonar searches on active and passive systems • Detect acoustic contacts
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable System Operating Guidelines • <i>Surface Ship Active Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>IUSS Standard Operating Procedures (SOPS)</i> (COMUNDERSEASURV INST S3120.11)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types of searches (arcs, baffle, beam, etc.) and operation of systems for optimum search (modes, menus, parameters, etc.).

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Annotate acoustic displays, make sonar contact recordings, report and log sonar contacts
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Annotate grams, charts, and tape recordings • Make acoustic data tape recordings • Make contact reports • Log contact data
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>ACINT Data Collection Guide</i> (ONI-1200-002-97) • <i>Signal Data Recorder Reproducer Set AN/USH-32(V)</i> (SE314-GV-MMM-010) • Sonar Contact Log (OPNAV 3100/13) • Passive Narrowband Log (OPNAV 3100/905) • <i>IUSS Standard Operating Procedures (SOPS)</i> (COMUNDERSEASURV INST S3120.11) • <i>XXX Class Combat Systems Doctrine</i> (COMNAVSURFLANT?COMNAVSURFPA C INST C3516 SERIES)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about annotating acoustic displays and procedures for recording contact data. Also, questions regarding contact reports and logging contact information will be asked.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Identify shipboard auxiliary systems, operation of systems, system parameters and normal/abnormal conditions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform system initialization and shutdown • Perform operational checks • Make operator panel and remote panel settings • Obtain water depth soundings • Establish voice underwater communications • Send and receive continuous wave (CW)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Combat Systems Operational Sequencing System Manuals (CSOSS)</i> • <i>On-Board Trainer AN/SQQ-89(V)-T</i> • <i>Bathythermograph/Sound Velocimeter AN/BQH-7A (SE365-BA-MMO-010/BQH-7A)</i> • <i>Bathythermograph Set AN/SSQ-(56,56A,60,61 and 61A) (SE365-AA-MMM-010)</i> • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System (SE394-C2-OPI-XX(SIMAS))</i> • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> • <i>Sonar Communication Set AN/WQC-2A</i> • <i>Sonar Sounding Set AN/UQN-4/4A Fathometer</i> • <i>Sonar Communication Set AN/WQC-6/WQC-6 (EC1)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions	You can expect questions about power on/off procedures, operational checks, system parameters (modes, freq ranges, operating characteristics), and specific operating

correctly:	capabilities and knobology. Also, you will be given symptoms and/or indications of system status that will require your analysis to determine if a fault condition exists.
------------	--

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Rig sonobuoys/mini mobile targets for deployment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Rig and deploy sonobuoys • Launch mini mobile targets
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual Sonobuoys</i> (NAVAIR 28-SSQ-500-1) • <i>Mobile Target MK-38 MOD 5</i> (SW581-A5-OPI-010/MK38-5) • <i>Expendable Mobile ASW Training Target (EMATT) MK 39 MOD 0</i> (SW581-DO-PRO-010/EMATT)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types, characteristics, and launch procedures for sonobuoys and mini mobile targets.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, maintain and repair shipboard sonar detecting /ranging systems to lowest replaceable unit (LRU); adjust or calibrate as needed to repair system to a fully operational condition
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Inspect, test, and replace battleshots and interlocks • Clean and inspect sonar detecting/ranging equipment • Adjust and calibrate sonar ranging/detecting equipment • Troubleshoot and replace components of sonar ranging/detecting equipment • Perform built-in-test equipment (BITE) procedures • Perform performance monitoring/fault location (PM/FL) tests • Run sonar system fault summaries • Repair interfaces between equipment • Perform active sonar transmitter source level tests • Perform bearing and range accuracy tests • Perform sonar system consolidated operability tests (SCOT) • Replace electrostatic discharge (ESD) sensitive components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> • <i>Operation and Maintenance Instructions</i>

	<p><i>for AN/SQS-56 Sonar Set</i></p> <ul style="list-style-type: none"> • <i>Sonar Signal Processing System AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i> • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS); Chs 5-10</i> • <i>Surface Ship ASW System with Control Panel MK 309 (OP 44070)</i> • <i>NEETS Modules 1-9, 12-16, 19-24</i> • <i>Planned Maintenance System (PMS) applicable MRC's</i>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about sonar detecting/ranging equipment maintenance procedures. You will be given indications of faulty conditions that require you to select the correct problem or resolution to the problem. Also, questions relating to the use of BITE, PM/FL and sonar system fault summaries; receiver sensitivity, range and bearing accuracy tests; SCOT; and ESD components will be asked.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean and inspect auxiliary equipment and degauss magnetic tape recorder heads and tapes
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Degauss magnetic tape recorder heads and tapes • Clean and inspect sonar acoustic communications equipment • Clean and inspect sonar bathythermographic equipment • Clean and inspect sonar classification/data gathering equipment • Clean and inspect towed CM equipment • Clean and inspect sonar depth sounding equipment • Clean and inspect sonar recorder equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>On-Board Trainer AN/SQQ-89(V)-T</i> • <i>Bathythermograph/Sound Velocimeter AN/BQH-7A (SE365-BA-MMO-010/BQH-7A)</i> • <i>Bathythermograph Set AN/SSQ-(56,56A,60,61 and 61A) (SE365-AA-MMM-010)</i> • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System (SE394-C2-OPI-XX(SIMAS))</i> • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> • <i>Sonar Communication Set AN/WQC-2A</i> • <i>Sonar Sounding Set AN/UQN-4/4A Fathometer</i> • <i>Sonar Communication Set AN/WQC-6/WQC-6 (EC1)</i> • <i>Technical Manual for Recorder Reproducer Set AN/USH-32(V)</i>

	<ul style="list-style-type: none"> • <i>Digital Magnetic Tape Recorder Reproducer RD-358A(V)</i> • <i>ACINT Data Collection Guide</i> (ONI-1200-002-97) • Planned Maintenance System (PMS) applicable MRC's
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on procedures for degaussing tape heads and tapes, as well as procedures for cleaning and inspecting auxiliary equipment and identification of abnormal conditions.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain towed systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Inspect towed arrays • Fill towed arrays • Replace towed array sections • Clean and inspect towed electric and electronic systems • Adjust towed sensor electric and electronic systems • Troubleshoot towed sensor electric and electronic systems • Replace components of towed sensor electric and electronic systems
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> • <i>Maintenance Manuals for Towed Array Handling and Stowage Group OK-410(V)</i> • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the description of the towed array and replace and fill procedures. You can also expect questions on towed sensor electric and electronic system troubleshooting, component replacement, adjustments, and cleaning and inspection procedures.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain sonar computers and peripheral equipment, to include sonar desktops (SIMAS, etc.)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Clean and inspect sonar computers and peripheral equipment • Perform sonar computer and peripheral equipment diagnostic tests • Analyze sonar computers and peripheral equipment diagnostic test data • Troubleshoot sonar computers • Replace sonar computer components • Troubleshoot sonar computer peripheral equipment • Replace sonar computer peripheral equipment components • Clean and inspect sonar desktop computers • Adjust sonar desktop computers • Troubleshoot sonar desktop computers • Replace sonar desktop computer components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> • <i>Operation and Maintenance Instructions for AN/SQS-56 Sonar Set</i> • <i>Sonar Signal Processing System AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>Sonar Receiving Set AN/SQR-19(V)</i>

	<p><i>Operation and Maintenance Manuals</i></p> <ul style="list-style-type: none"> • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS); Chs 5-10</i> • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System (SE394-C2-OPI-XX(SIMAS))</i>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on procedures for cleaning and inspecting sonar and desktop computers, troubleshooting and component replacement for sonar and desktop computers, and computer diagnostics for sonar computers and peripheral equipment.</p>

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain UWFCS/ASWCS and interfaces
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Test sonar to UFCS/ASWCS interfaces • Clean and inspect UFCS/ASWCS
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Surface Ship ASW System with Control Panel MK 309 OP 4407</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS); Chs 5-10</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on cleaning and inspection procedures for UFCS/ASWCS and testing the sonar to UFCS/ASWCS interfaces.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate and maintain towed arrays
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Deploy/retrieve towed arrays • Clean, inspect, lubricate and adjust array handling storage group • Start up and test hydraulic pumps • Clean, inspect, lubricate, and adjust countermeasures handling equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Maintenance Manuals for Towed Array Handling and Stowage Group (OK-410)</i> • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i> • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about deployment/retrieval procedures for towed arrays and countermeasures; maintenance, lubrication and adjustments to the countermeasures handling equipment and towed array handling and stowage group (TAHSG); and starting and testing procedures for hydraulic pumps.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain sonar dome pressurization system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Clean and inspect sonar dome pressurization systems • Replace sonar dome pressurization system components • Prepare sonar dome for entry • Clean and inspect sonar dome interiors • Clean and inspect sonar dome watertight doors • Lubricate and test sonar dome watertight doors • Rig or unrig hydrophone test booms
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about operating the dome pressurization system, functions of valves, preparing the dome for entry and the maintenance performed on the sonar dome watertight doors. You can also expect questions on the rigging and unrigging of the hydrophone test booms.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain electronic cooling systems (ECS)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Line up electronic cooling system (ECS) valves • Test ECS flow rate switches, flowmeters, and indicators • Inspect and change ECS micron filters • Clean and inspect heat exchangers • Clean, inspect, and change equipment air filters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Aegis Electronic Equipment Water Cooler HD 1074/SQS</i> • Applicable ships Electronic Cooling System (ECS) Maintenance/Operations Manual
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about alignment procedures for ECS, functions of valves, system parameters, cleaning and replacement of filters and operation of heat exchangers.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain paper drives
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Change paper drive recorder helices and styli • Change paper drive recorder rolls
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>On-Board Trainer AN/SQQ-89(V)-T</i> • <i>Bathythermograph/Sound Velocimeter AN/BQH-7A (SE365-BA-MMO-010/BQH-7A)</i> • <i>Bathythermograph Set AN/SSQ-(56,56A,60,61 and 61A) (SE365-AA-MMM-010)</i> • <i>Sonar Sounding Set AN/UQN-4/4A Fathometer</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about replacement of helices, styli, and recorder paper rolls.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sound Silencing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Inspect resilient mounts and grounding straps
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Inspect resilient mounts and ground straps
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • Ship Silencing Instructions (CNSL/CNSPINST C9073)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about inspecting resilient mounts and ground straps and the effects on sound silencing.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Sonar Software Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain and operate digital data storage devices and tactical system hardware/software
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Record data to and retrieve data from digital data storage devices • Record tactical system hardware and software revisions • Perform tactical system program initializations and recoveries • Install and copy tactical system software
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> • <i>Operation and Maintenance Instructions for AN/SQS-56 Sonar Set</i> • <i>Sonar Signal Processing System AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i> • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS); Chs 5-10</i> • <i>Surface Ship ASW System with Control Panel MK 309 (OP 4407)</i>
<i>Exam Expectations.</i> These	You can expect questions about digital data

are subject areas you should know to help you answer exam questions correctly:	read/write procedures, tactical system software and hardware recoveries, initializations, and updating tactical systems software libraries.
--	---

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update sonar operation, maintenance logs and maintain technical manuals
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Update sonar logs • Document XBT data • Use schematics, wiring diagrams, technical drawings, and technical publications
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Sonar Contact Log (OPNAV 3100/13) • BT log (OCEANAV 3167/1) • Passive Narrowband Logs (OPNAV 3100/905)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about maintaining sonar operational logs, documenting XBT data, and maintaining technical manuals (ordering, changes, etc.).

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Inventory Maintenance Assistance Modules (MAMS)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify MAMs • Inventory MAMS
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Afloat Supply Procedures</i> (NAVSUP Publication 485)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning the identification, inventory, use, and storage requirements for MAMS.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Inspect and review all HAZMAT material instructions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Review Hazardous Material User's Guide (HMUG) • Review Hazardous Material (HAZMAT) inventories • Review Material Safety Data Sheets (MSDS) • Inspect HAZMAT storage areas • Implement HAZMAT waste disposable method
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Navy Occupational Safety and Health Program Manual</i> (OPNAVINST 5100.23)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about HAZMAT storage areas, waste disposal, MSDS, and the Hazardous Material User's Guide.

Advancement Handbook for STG3

General STG <i>Skill Area</i>	Weapons Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform torpedo handling evolutions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Load and unload torpedo tubes • Rig davits and hoist gear for torpedo handling • Transfer weapons
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Ammunition Afloat</i> (NAVSEA OP4) • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO 020) • NAVSEA OP 2173 Vols 1&2 • Planned Maintenance System (PMS) applicable MRC's • <i>Technical Manuals for Strikedown Lift Systems DD963, DD 993 and CG Class</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about loading torpedo tubes; charging air flasks, davits and hoist gear for torpedo handling; and the cleanliness and preservation of weapon magazines, torpedo tubes, related spaces, and safety requirements.

Part 2

Advancement Handbook for STG2

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor and interpret intelligence threat data products
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Check intelligence threat data for contacts of interest • Interpret information from tactical messages
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • ONI ACINT Newsletters • <i>Maritime Reporting Procedures</i> (NWP 1-03.41) • <i>Integrated Undersea Surveillance System Coordination Procedures</i> (NWP 3-55.32.1)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types of intel products offered and interpretation of tactical messages.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform actions of Sonar Supervisor
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Determine optimum sonar operating modes • Determine optimum sonar suite configuration • Compute search arcs from UFCS/ASWCS data • Assign priorities to contacts and identify confidence levels • Recommend wake or baffie clearing maneuvers • Recommend own ship course and speed changes • Recommend sonar operating modes to ASWO • Recommend actions to reduce own ship's detectability • Recommend tactical employment of sonar sensors
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable Ships AN/SQQ-89(V) Operating Guidelines • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Surface Ship Antisubmarine Warfare (ASW) Principles</i> (NWP 3-21-3) • <i>XXX Class Combat Systems Doctrine</i> (COMNAVSURFLANT/COMNAVSURFPA C INST C3516 SERIES) • <i>XXX Class Tactical Manual</i> (NWP 3-20.6 SERIES) • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1 Vol 1 Ch 9) • <i>IUSS Standard Operating Procedures (SOPS)</i> (COMUNDERSEASURV INST S3120.11)

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the responsibilities of the Sonar Supervisor/Watch Floor Supervisor. This will include, but is not limited to, optimum employment and mode selection, recommending search arcs and ship course and speed changes, assigning contact priorities, baffle clearing maneuvers and reduction of own ship's detectability.</p>
---	--

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Develop localization data, using available acoustic information
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Correlate multi-sensor data • Correlate LAMPS and UFCS/ASWCS contact data • Compute contact intercept courses • Determine best area for contact to avoid detection
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1 Vol 1 Ch 9) • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>SH60B/LAMPS MK III TACTICAL Manual</i> (NWP 3-22.5-SH60B) • <i>Plotting Procedures</i> SURTOPS Vol II • Applicable ships AN/SQQ-89(V) Operating Guidelines
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about correlating multi-sensor data, and determining the best area for contact to avoid detection. Also, given a scenario, you will be required to compute contact intercept courses.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Utilize tactical oceanography principles
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Determine ambient limited and breakpoint speeds • Analyze oceanographic and meteorological data
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Fleet Oceanographic and Acoustic Reference Manual</i> (RP 33) • <i>Tactical Use of the Ocean Environment</i> (NWP 3-59.1) • <i>Surface Ship Antisubmarine Warfare (ASW) Principles</i> (NWP 3-21.3) • Applicable ships AN/SQQ-89(V) Operating Guidelines • <i>United States Navy Meteorological & Oceanographic Support System Manual</i> (NAVMETOCCOMINST 3140.1K) • <i>Surface Ship Acoustic Prediction Systems and Tactics</i> (NWP 3-21.34)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about ambient limited and breakpoint speeds and utilizing oceanographic and meteorological data.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct ASW attacks
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Conn ship using Underwater Fire Control Plot (UFCP) during ASW attacks • Conduct ASW attacks • Analyze ASW weapons firing data
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>XXX Class Combat Systems Doctrine (COMNAVSURFLANT/COMNAVSURFPA C INST C3516 SERIES)</i> • <i>XXX Class Tactical Manual (NWP 3-20.6 SERIES)</i> • <i>Allied Submarine and Antisubmarine Exercise Manual (AXP 1(C))</i> • <i>System Manuals for Underwater Fire Control System MK 116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS)</i> • <i>Surface Ship ASW System with Control Panel MK 309 (OP 4407)</i> • <i>USW Surface Ship Attack & Evasion Manual (SZ5050-1-96)</i> • <i>SH60B/LAMPS MK III Tactical Manual (NWP 3-22.5-SH60B)</i> • <i>Standard Fire Control Symbols (NAVORD OP 1700)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about conning ship during ASW attacks, conducting ASW attacks, and ASW weapons firing data.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct torpedo evasion
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recommend use of evasion tactics • Recommend torpedo evasive maneuvers • Identify contact weapons and sensor capabilities
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>USW Surface Ship Attack & Evasion Manual</i> (SZ5050-1-96) • <i>SH60B/LAMPS MK III Tactical Manual</i> (NWP 3-22.5-SH60B) • <i>Navy Antisubmarine Evasive Steering</i> (ATP 3(B)) • <i>In-Water Acoustic Characteristics of Russian Missiles, Countermeasures, and Torpedoes</i> (DST 1260S-084-XX) • <i>Foreign Submarine Handbook</i> (NWP 1-10.21) • <i>Worldwide Threat to U.S. Navy & Marine Forces</i> (ONI-1200-002-98 CD)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about torpedo evasion maneuvers, evasion devices, and contact weapon and sensor capabilities.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Security
A <i>skill</i> you are expected to perform from the General Skill Area above:	Collect ACINT data
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Collect Acoustic Intelligence (ACINT) data
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>ACINT Collection Guide</i> (ONI-1200-002-97)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the collection of ACINT data.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform sonar self noise measurements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Take sonar noise recognition differential (NRD) measurements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Operator Manual for AN/UYQ-25(B) SIMAS II</i> • <i>XXX Class Ship Silencing Instruction</i> (COMNAVSURFLANT/COMNAVSURFPA C C9703 INST)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about procedures for sonar noise recognition differential measurements.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sonar System Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain hydrophones and transducers
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Replace hydrophones and transducers • Test and calibrate
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about hydrophone and transducer testing, calibration, and replacement.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain sonar dome pressurization systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Test sonar dome pressurization systems • Conduct sonar dome air-water interchanges
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on testing of pressurization systems (valves, gauges, filters, etc.) and air-water interchange procedures.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Sound Silencing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor and document self noise sources
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify and isolate sources of self noise • Document own ship radiated noise levels
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21-35) • <i>Standard Organization and Regulations Manual</i> Ch 6 (OPNAVINST 3120) • <i>XXX Class Ship Silencing Instruction</i> (COMNAVSURFLANT/COMNAVSURFPA C C9703 INST)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying self noise sources (tonal mapping, SSRNMs).

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare sonar search plans
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Prepare sonar search plans • Update sonar search plans
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Applicable ships AN/SQQ-89(V) Operating guidelines • <i>XXX Class Combat Systems Doctrine</i> (COMNAVSURFLANT/COMNAVSURFPA C INST C3516 SERIES)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on preparing search plans, to include considerations, and forms or worksheets. Also, questions will be asked about updating sonar search plans.

Advancement Handbook for STG2

General STG <i>Skill Area</i>	Weapons Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate underwater fire control systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Make weapons selections • Preset shipboard torpedoes • Launch ASW weapons
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Surface Ship ASW System with Control Panel MK 309 OP 4407</i> • <i>System Manuals for Underwater Fire Control System MK 116 MOD (applicable) Antisubmarine Warfare Control System (ASWCS)</i> • <i>General Information Book for Torpedo MK 46 MOD 5 (SW515-A5-GIB-010)</i> • <i>Lightweight Torpedo Shipboard Handling, Storage and Firing Procedures MK 50</i> • <i>XXX Class Combat Systems Doctrine (COMNAVSURFLANT/COMNAVSURFPA C INST C3516 SERIES)</i> • <i>XXX Class Tactical Manual (NWP 3-20.6 SERIES)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on firing procedures, weapons selection criteria, and presetting of shipboard torpedoes.

Part 3

Advancement Handbook for STG1

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Use hydrographic charts
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Interpret hydrographic charts
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Catalog of Maps, Charts, and Related Products</i>, National Imagery and Mapping Agency Hydrographic Products
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the use of hydrographic charts.

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform coordinated ASW operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Coordinated ASW operations • Battle group operations
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Coordinated Submarine/ Task Group Operations Manual</i> (NWP 3-21.0) • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1 Vol 1; Ch 9) • Navy-wide OPTASK USW, parts I&II • <i>Allied Antisubmarine Warfare Manual</i> (ATP 28(A)) • <i>Tactical Use of the Ocean Environment</i> (NWP 3-59.1)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about employment of ASW units, contact prosecution, and Master Fusion Plots / Water Space Management (WSM).

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Sonar Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draft messages
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Draft tactical messages
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Allied Structured Messages (APP-4)</i> • <i>Allied Submarine and Antisubmarine Exercise Manual (AXP 1(C))</i> • <i>Antisubmarine Warfare Exercises (FXP 1 REV(J))</i> • <i>Maritime Reporting Procedures (NWP 1-03.41)</i> • <i>Integrated Undersea Surveillance System Coordination Procedures (NWP 3-55.32.1)</i> • <i>IUSS Standard Operating Procedures (SOPS) (COMUNDERSEASURV INST S3120.11)</i> • <i>Naval Telecommunications Procedures (NTP-3)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on drafting and interpreting tactical messages.

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Security
A <i>skill</i> you are expected to perform from the General Skill Area above:	Ship ACINT packages
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Prepare ACINT data for shipment • Packaging procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>ACINT Collection Guide</i> (ONI-1200-002-97)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on proper ACINT data collection and packaging for shipment.

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor sonar dome evolutions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Monitoring of sonar dome air-water interchanges • Sonar dome safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about sonar dome air-water interchange procedures.

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Sound Silencing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor and maintain own ship's Quiet Ship Bill
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Review and monitor ship's Quiet Ship Bill • Update ship's Quiet Ship Bill
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Standard Organization and Regulations Manual</i> Ch 6 • <i>XXX Class Ship Silencing Instruction</i> (COMNAVSURFLANT/COMNAVSURFPA C C9703 INST)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about implementing, updating, and monitoring own ship's Quiet Ship Bill.

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain logs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Update Combat Systems Smooth Logs • Update Sonar Dome Dive Logs
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's • <i>Combat Systems Improvement Plan COMNAVSURFLANT CSIP 52B</i> • <i>COMNAVSURFPAC Information Bulletin (CIB)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about sonar dome dive logs, dome dive qualifications, and safety requirements. Also, you will be asked questions on the Combat Systems Smooth Log (contents, requirements, etc.).

Advancement Handbook for STG1

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor own ship's radiated noise and equipment lineup library
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Review own ship's acoustic trial reports
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21-35) • <i>Standard Organization and Regulations Manual</i> Ch 6 • <i>XXX Class Ship Silencing Instruction</i> (COMNAVSURFLANT/COMNAVSURFPA C C9703 INST)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on maintaining and utilizing own ship's acoustic trial reports (SSRNM, tonal mapping).

Part 4

Advancement Handbook for STGC

Advancement Handbook for STGC

General STG <i>Skill Area</i>	Mechanical Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Supervise sonar dome evolutions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Coordinate sonar dome entry evolutions • Supervise sonar dome entry
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Technical Manual for AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> • <i>Sonar Dome Rubber Window and Pressurization Systems for DDG-51 Class</i> • <i>Pressurization System with Sonar Dome Rubber Window for DD 963, DD993, and CG-47 Ship Classes</i> • Planned Maintenance System (PMS) applicable MRC's
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the operation of the sonar dome, air/water pressurization subsystems, alarms, and safety precautions to be observed during dome diving operations.

Advancement Handbook for STGC

General STG <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Supervise torpedo firings and make required reports
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Weapon characteristics • Preparation of weapons firing reports • Safety procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO 020) • <i>General Information Book for Torpedo MK 46 MOD 5</i> (SW515-A5-GIB-010) • <i>Lightweight Torpedo Firing Report Procedures</i> PEO(USW) INST 8515.1 • <i>Torpedo MK 46 Firing Reporting System</i> (NAVSEAINST 8515.1) • <i>Lightweight Torpedo Fleet Peacetime Firing Policy</i> (OPNAVINST C8510.12) • <i>Localization and Recovery of Lightweight Torpedoes MK 46 Torpedo/MK46 REXTORP</i> (SW515-AO-PRO-010/MK46) • <i>Antisubmarine Warfare Exercises (FXP-1)</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about torpedo firing procedures, weapon characteristics (ranges, modes), and recommendations. Also, you will be asked questions on firing reports and safety requirements.

Advancement Handbook for STGC

General STG <i>Skill Area</i>	Weapons Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Supervise weapons on/off load operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Weapons handling requirements • Receipt and transfer inspections • Safety requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO 020) • <i>Ammunition Afloat</i> (NAVSEA OP4) • <i>Technical Manuals for Strikedown Lift Systems DD963, DD993, CG Class</i>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about handling requirements for weapons receipt inport and at sea; weapons transfers, including conducting acceptance inspections; and all safety procedures (OTTO Fuel II).

Appendix 1

References Used in This Advancement Handbook

Short Title	Long Title	Stocking Point
APP 4	Allied Structured Messages	Note 1
ATP 1 Vol 1	Allied Maritime Tactical Instructions and Procedures	Note 1
ATP 3(B)	Navy Antisubmarine Evasive Steering	Note 1
ATP 28A	Allied Submarine Warfare Manual	Note 1
AXP1 (C)	Allied Submarine and Antisubmarine Exercise Manual	Note 1
CATP2V01U	Catalog of Maps, Charts, and Related Products, Hydrographic Products	Note 10
CNMOC 3167/2	Bathymograph Log	Note 1
CNSL/CNSP INST C3516	XXX Class Combat Systems Doctrine	Note 5
CNSL/CNSP INST C9703	Applicable Ship Class Silencing Instructions	Note 5
CODE IDENT 10001 OP 4407	Surface Ship ASW System with Control Panel MK 309	Note 1
COMNAVSURFLANT CSIP 52B	Combat Systems Improvement Plan	Note 5
CSOSS	Combat Systems Operational Sequencing System Manuals	Note 9
DST 1210S-345-XX Vols 1& 2	Acoustic Characteristics of Russian Surface Combatants	Note 4
DST 1220S-092-XX	Acoustic Characteristics of Diesel Submarines (Less Russia)	Note 4
DST 1220S-461-XX	Acoustic Characteristics of Russian Type 2 and 3 Nuclear Submarines	Note 4
DST 1220S-465-XX	Acoustic Characteristics of Russian Type 6 and 7 Nuclear Submarines	Note 4
DST 1220S-646-XX	Acoustic Characteristics of Russian Type 1 Through Type 4 Diesel Submarines	Note 4
DST 1260S-084-XX	In-Water Acoustic Characteristics of Russian Missiles, Countermeasures and Torpedoes	Note 4
FXP-1	Antisubmarine Warfare Exercises	Notes 1 & 8
MZ-6050-1-95	Mine-Like Object Detection and Avoidance	Note 8
NAVAIR 28-SSQ-500-1	Technical Manual Sonobuoys	
NAVEDTRA 172-XX-XX-XX	Navy Electricity and Electronics Training Series MODS 1-9, 12-16, 19-24	Note 3
NAVMETOCOMINST 3140.1	Meteorological and Oceanographic Support System Manual	Note 7

NAVORD OP 1700	Standard Fire Control Symbols	Note 1
NAVSEAINST 8515.1	Torpedo MK 46 Firing Reporting System	Note 1
NAVSEA OP 2173 VOLS 1&2	Approved Handling Equipment for Weapons and Explosives	Note 1
NAVSEA S8000-AD-MMO-010/A10	AN/SQQ-89(V)-T() On-Board Trainer (OBT)	Note 1
NAVSEA 0967-LP-490-1640	Sonar Communications Set AN/WQC-2/2A	Note 1
NAVSUP PUB 485	Afloat Supply Procedures	Note 1
NTP-3	Naval Telecommunications Procedures	Note 13
NV PUB 217	Maneuvering Board Manual	Note 10
NWP 1-03.41	Maritime Reporting Procedures	Notes 1 & 8
NWP 1-10.2 Vol 1 (REV A)	Principles of Lofar Gram Analysis	Notes 1 & 8
NWP 1-10.2 Vol 2 (REV A)	Principles of Lofar Gram Analysis	Notes 1 & 8
NWP 1-10.21	Foreign Submarine Data Handbook	Notes 1 & 8
NWP 1-10.22	Passive Acoustic Classification Reference Manual	Notes 1 & 8
NWP 1-10.26	Signature Catalog: CIS Diesel and Nuclear Submarines	Notes 1 & 8
NWP 1-10.27	U.S. Nuclear Submarine Data Handbook	Notes 1 & 8
NWP 3-20.6	XXX Class Tactical Manuals	Notes 1 & 8
NWP 3-21.0	Coordinated Submarine / Task Group Operations Manual	Notes 1 & 8
NWP 3-21.3	Surface Ship Antisubmarine Warfare (ASW) Principles	Notes 1 & 8
NWP 3-21.34	Surface Ship Acoustic Prediction Systems and Tactics	Notes 1 & 8
NWP 3-21.35	Surface Ship Active Passive Sonar Systems and Tactics	Notes 1 & 8
NWP 3-21.51.1	Target Motion Analysis (TMA) Techniques	Notes 1 & 8
NWP 3-21.51.3	Surface Ship Passive Localization and Target Motion Analysis	Notes 1 & 8
NWP 3-22.5-SH60B	SH60B / LAMPS MK III Tactical Manual	Notes 1 & 8
NWP 3-55.32.1	Integrated Undersea Surveillance System Coordination Procedures	Notes 1 & 8
NWP 3-59.1	Tactical Use of the Ocean Environment	Notes 1 & 8
ONI (CD)	Compendium of Undersea Warfare Products (CD contains ACINT Newsletters)	Note 11
ONI-1200-002-98 (CD)	Worldwide Threat to U. S. Navy & Marine Forces	Note 11
ONI-1200-002-97 (CD)	ACINT Data Collection Guide	Note 11
OP 4	Ammunition Afloat	Note 1
OPNAV 3100/13	Sonar Contact Log	Note 1
OPNAVINST C8510.12	Lightweight Torpedo Fleet Peacetime Firing Policy	Note 1

OPNAVINST 3120	Standard Organization and Regulations Manual	Note 6
OPNAVINST 5100.23	Navy Occupational Safety and Health Program Manual	Note 6
PEO(USW) INST 8515.1	Lightweight Torpedo Firing Report Procedures	Note 12
RP 33	Fleet Oceanographic and Acoustic Reference Manual	Note 7
SZ5050-1-96	USW Surface Ship Attack and Evasion Manual	Note 8
S9165-AF-MMA-010/03481	AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels	Note 1
S9165-AH-MMA-010	Sonar Dome Rubber Window SDRW-1 (DD-963, DDG-993, and CG-47 Class Vessels)	Note 1
S9165-AE-MMA-010	Window, Sonar Dome, Rubber, SDRW-1 for DDG-51 Class Vessels	Note 1
SE313-XX-XXX-XX(C)	System Operational and Maintenance Manuals for Sonar Detecting Ranging Set AN/SQS-53(ALL) Chs 1-4	Note 1
SE314-GV-MMA-010	General Information and Operation Instructions for AN/SQQ-28(V)	Note 1
SE 314-GV-MMM-010	Signal Data Recorder Reproducer Set AN/USH-32(V)	Note 1
SE315-DT-MMO-XXX	Operation/Maintenance Instructions for Sonar Set AN/SQS-56	Note 1
SE320-XX-XXX-XXX	System Manuals for Sonar Receiving Set AN/SQR-19(ALL)	Note 1
SE343-FO-MMO-010/C	Sonar Communications Sets AN/WQC-6(EC-1) and AN/WQC-6	Note 1
SE362-DO-MMM-010	Sonar Sounding Set AN/UQN-4/4A Fathometer	Note 1
SE365-AA-MMM-010	Bathymograph Set AN/SSQ-(56, 56A, 60, 61 and 61A)	Note 1
SE365-BA-MMO-010 /BQH-7A	Bathymograph/ Sound Velocimeter AN/BQH-7A	Note 1
SE376-HA-MMA-010/020/030	Torpedo Countermeasures Transmitting Set AN/SLQ-25A	Note 1
SE376-HO-MMA-010/C SLQ-25	Torpedo Countermeasures Transmitting Set AN/SLQ-25	Note 1
SE394-CB-SOM-010	Software Operators Manual, AN/UYQ-25B(V)1	Note 1
SE394-CB-SOM-A10	Software Operators Manual, AN/UYQ-25B(V)1 SIMAS II	Note 1
SE394-C2-OPI-XX(SIMAS)	Operator's Manual for AN/UYQ-25A(V) Data Processing System	Note 1
SE394-XXX-XXX-XXX	System Technical Manual for AN/SQQ-89(V) Surface Antisubmarine Warfare	Note 1

	Combat System	
SE641-AE-MMO-010	Digital Magnetic Tape Recorder Reproducer Set RD-358A(V)	Note 1
SG420-AX-MMO-010	Strikedown Lift System for DD963, DD993, and CG Class	Note 1
SG813-CL-MMO-010/020	Towed Array Handling and Stowage Group OK-410(V)	Note 1
SW181-XX-XXX-XXX	System Manuals for Underwater Fire Control System MK 116 MOD (ALL) (ASWCS) Chs 1-3	Note 1
SW515-AO-PRO-010/MK46	Localization and Recovery of Lightweight Torpedoes MK 46/ MK 46 REXTORP	Note 1
SW515-AO-PRO-20	Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)	Note 1
SW515-AO-PRO-40	Lightweight Torpedo Shipboard Handling, Storage and Firing Procedures	Note 1
SW515-A5-GIB-010	General Information Book for Torpedo MK 46 MOD 5	Note 1
SW581-A5-OPI-010/MK38-5	Mobile Target MK 38 MOD 5	Note 1
SW581-DO-PRO-010/EMATT	Expendable Mobile ASW Training Target (EMATT) MK 39 MOD 0	Note 1
VARIOUS	Operating Guidelines for AN/SQS-53(ALL)	Note 2
VARIOUS	Operating Guidelines for AN/SQR-19(ALL)	Note 2
VARIOUS	Operating Guidelines for AN/SQQ-28(ALL)	Note 2
VARIOUS	Operating Guidelines for AN/UYQ-25(ALL)	Note 2
VARIOUS	Operating Guidelines for AN/SQQ-89(V) ALL, Command Considerations and Sonar Supervisor Manuals	Note 2

LEGEND:

Note 1 – To order obtain Stk. No. from NAVSUP 2002, then MILSTRIP to NAVICP PHILA or (if unclass) via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 – Commander, Naval Undersea Warfare Center
Code 3133 Bldg. 1320
1176 Howell Street
Newport, R.I. 02841-1708

Note 3 – To order obtain Stk. No. from NAVEDTRA 12061, then MILSTRIP to NAVICP PHILA (See your command ESO or training officer)

Note 4 – Defense Intelligence Agency
Customer Service Desk
Bolling AFB
Washington, DC 20340-5100

DSN: 428-4319

Note 5 – Ltr Request to : Commander
Naval Surface Forces U.S. Atlantic Fleet
ATTN: Code N002A2
1430 Mitscher Ave
Norfolk, VA. 23551-2494

Note 6 – INTERNET: <http://neds.nebt.daps.mil/>

Note 7 – Commanding Officer
Naval Oceanographic Office
Stennis Space Center, MS 39522-5001

Note 8 – NTIC Series A/B (CD-ROM) (See your command NWP Custodian)

Note 9 – These pubs are furnished to the ships who have CSOSS installed onboard. Those who are not CSOSS will refer to the System Operational Manuals for that class ship

Note 10 – National Imagery and Mapping Agency (NIMA)

Note 11 – Office of Naval Intelligence
4251 Suitland Rd
Washington DC

Note 12 – Naval Undersea Warfare Center Division
610 Dowell Street
Attn: Code 32 Lightweight Torpedo Information Desk
Keyport, WA 98345-7610

Note 13 – Point-of-Contact: Downloaded from COMNAVCOMTELCOM's Bulletin Board Service (BBS); ALCOM 020/96 refers. If document is classified, refer to note 1